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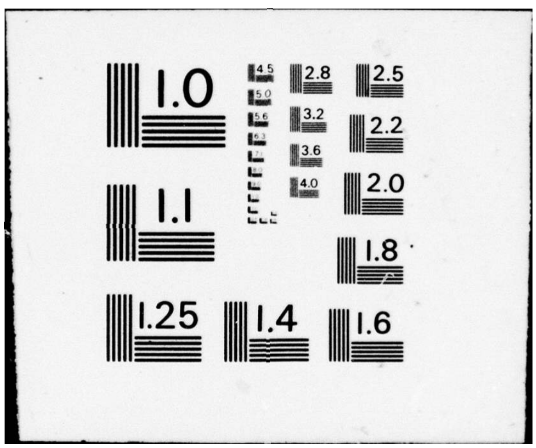
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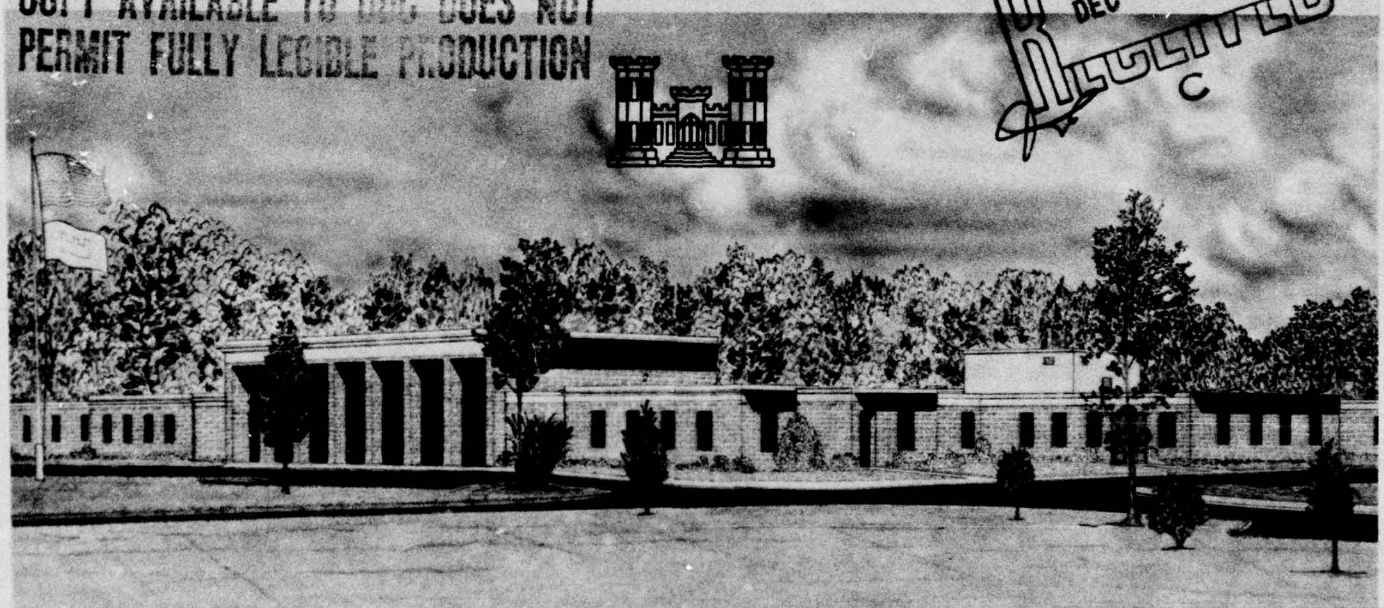
by

R. D. Jackson



June 1973

Sponsored by Office, Chief of Engineers, U. S. Army

Conducted by U. S. Army Engineer Waterways Experiment Station
Soils and Pavements Laboratory
Vicksburg, Mississippi

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ARMY-MRC VICKSBURG, MISS.

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Foreword

The study reported herein was conducted under the general supervision of the Engineering Design Criteria Branch, Soils and Pavements Laboratory, of the U. S. Army Engineer Waterways Experiment Station (WES), Vicksburg, Mississippi. Personnel involved in the condition survey were Messrs. R. D. Jackson, P. S. McCaffrey, Jr., and W. J. McKay of the WES and Mr. H. H. Baker of the U. S. Army Engineer Division, New England, Waltham, Massachusetts. The main portion of this report was prepared by Mr. Jackson under the general supervision of Messrs. J. P. Sale, R. G. Ahlvin, R. L. Hutchinson, and P. J. Vedros of the Soils and Pavements Laboratory. The section on frost effects was prepared by Mr. Baker.

COL Ernest D. Peixotto, CE, was Director of the WES during the conduct of the study and preparation of the report. Mr. F. R. Brown was Technical Director.

Contents

Conversion Factors, British to Metric Units of Measurement

British units of measurement used in this report can be converted to metric units as follows:

Multiply	By	To Obtain
inches	2.54	centimeters
feet	0.3048	meters
miles (U. S. statute)	1.609344	kilometers
square inches	6.4516	square centimeters
miles per hour	1.609344	kilometers per hour
pounds (mass)	0.45359237	kilograms
pounds (force) per square inch	0.6894757	newtons per square centimeter

CONDITION SURVEY, BANGOR INTERNATIONAL AIRPORT, BANGOR, MAINE

Authority

1. Authority for conducting condition surveys at selected airfields is contained in amendment to FY 1972 RDTE Funding Authorization (MFS-MC-5, 16 February 1972), subject: "Air Force Airfield Pavement Research Program," from the Office, Chief of Engineers, U. S. Army, Directorate of Military Construction, dated 18 February 1972.

Purpose and Scope

2. The purpose of this report is to present the results of a condition survey performed at Bangor International Airport (formerly Dow Air Force Base), Bangor, Maine, during 1-4 August 1972. The following three major areas of interest were considered in this condition survey:

a. The structural condition of the primary airfield pavements;

b. The condition of pavement repairs and the types of maintenance materials that have been used at this airfield; and

c. Any detrimental effects of frost action to the pavement facilities.

3. This report is limited to a presentation of visual observations of the pavement conditions, discussion of these observations, and pertinent remarks with regard to the performance of the pavements. No physical tests of the pavements, foundations, or patching materials were performed during this survey.

Pertinent Background Data

General description of airfield

4. Bangor International Airport (BIA) is located in Penobscot

County, Maine, between U. S. Highway 2 and State Highway 222 and adjacent to the western city limits of the city of Bangor. A vicinity map is shown in plates 1 and 2.

5. In August 1972, the airport facilities consisted of a NW-SE (15-33) runway, a parallel taxiway, a heavy-load operational apron and extension, an operational apron, two warm-up aprons, connecting taxiways from the runway to the parallel taxiway, ANG facilities, and former ADC and SAC alert facilities. The runway was 300 ft* wide and 11,440 ft long; the parallel taxiway was 75 ft wide and 10,650 ft long; the heavy-load operational apron was 1,365 ft long and 1,000 ft wide; the apron extension was 1,470 ft long and 775 ft wide; the operational apron and warm-up aprons were irregular in shape; the connecting taxiways were 75 ft wide; the ANG facilities were irregular in shape; and the former ADC and SAC alert facilities were of various dimensions. A layout of the airfield is shown in plate 1. A pavement plan indicating the type pavement on each facility is shown in plate 2.

Previous reports

6. Previous reports concerning the airfield pavement facilities at BIA are listed below. Pertinent data were extracted from them for use in this condition survey report.

a. Condition survey reports. Two reports have been prepared by the Ohio River Division Laboratories, CE, Cincinnati, Ohio:

(1) "Condition Survey Report, Dow Air Force Base, Maine," December 1960.

(2) "Condition Survey Report, Dow Air Force Base, Maine," January 1962.

b. Pavement evaluation reports:

(1) U. S. Army Engineer Office, CE, "Report of Airfield Pavement Evaluation Study, Dow Field," July 1944, Boston, Massachusetts.

(2) U. S. Army Engineer Division, New England, CE, "Pavement Failure Report, Dow Air Force Base, Bangor, Maine," May 1957, Waltham, Massachusetts.

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* A table of factors for converting British units of measurement to metric units is presented on page vii.

(3) U. S. Army Engineer Division, New England, CE, "Performance of Heavy-Duty Rigid Pavement, Winter of 1957-58, Dow Air Force Base, Bangor, Maine," and Addendum No. 1 for winter of 1958-59, October 1958 and September 1959, Waltham, Massachusetts.

(4) _________, "Airfield Evaluation Report, Dow Air Force Base, Bangor, Maine," February 1960, Waltham, Massachusetts.

History of Airfield Pavements

Design and construction history

7. Details of the design and construction history of the airfield pavements (extracted from the reports referenced in paragraph 6) are presented in table 1. Pavement thicknesses, descriptions, and other details are presented in table 2.

Traffic history

8. Complete traffic records for the airfield were not available. Incomplete records from the time the heavy-duty pavements were built (1955-58) until December 1967 indicate that the airfield has received approximately 140 cycles* of B-47 traffic, 7,150 cycles of B-52 traffic, 4,700 cycles of KC-97 traffic, 4,450 cycles of KC-135 traffic, 4,500 cycles of cargo aircraft traffic, and 63,000 cycles of all other traffic. During this period, alert taxiway movements were performed by B-52 and KC-135 aircraft. These movements involved taxiing from the heavy-load apron to the south parallel taxiway, taxiing across the south end of the runway to the SAC alert facilities, and returning to the apron. During 269 of the B-52 movements, the gross weight of the aircraft was 400,000 lb; 82 of the movements were performed at gross weights of 480,000 lb. KC-135's performed 377 movements with gross loads of 300,000 lb over the same route as the B-52. Since July 1968, the airfield has served as a commercial airport. Through March 1972, the airport had received 6,583 cycles of DC-8, 707, and 747 traffic. In

* A cycle of operation is one landing and one takeoff.

addition, DC-9 and 727 aircraft use the airport on a regularly scheduled basis.

Conditions of Pavement Surfaces

Pavement inspection procedure

9. The following procedure was used in conducting the rigid pavement inspection. Representative features were selected for detailed inspection. The features were then inspected slab* by slab, and the defects were recorded. The locations of the individual pavement features, the inspection starting points, and the directions in which the pavements were inspected (shown by arrows) are indicated in plate 1. The results of the rigid pavement survey for those features that were inspected in detail are presented in table 3. This table shows a quantitative breakdown of the various types of defects and a condition rating for each pavement feature inspected in detail. The procedures used for determining the condition rating of a pavement are given in Appendix III of Department of the Army Technical Manual TM 5-827-3, "Rigid Airfield Pavement Evaluation," dated September 1965.

Runway

10. The first 1000 ft of the SE (33) end of the runway (features R1A, R2A, and R3B) were in excellent condition. The pavement of these features, which is 17- and 19-in. reinforced portland cement concrete (RPCC), contained only 7 major defects, all of which were transverse cracks that were held tightly together by the reinforcement. The first 1000 ft of the NW (15) end of the runway (features R7A, R8D, and R9B) were also in excellent condition, since only two major defects (both transverse cracks) were noted. These two cracks were held tightly together by the reinforcement in the 17- and 19-in. RPCC. The center 100-ft-wide section of the runway interior contained only 22 major defects (19 transverse and 3 diagonal cracks). None of the cracks showed

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* A slab is the smallest unit, containing no joints, of a given pavement feature.

any evidence of movement; the 15-in. pavement of this feature is also reinforced. Features R4D, R6D, and R10D (the outer 100-ft-wide edges of the runway), which are 15-in. portland cement concrete (PCC) pavement, were not surveyed in detail; however, numerous small longitudinal cracks were observed in this nonload-bearing pavement.

Taxiways

11. The 19-in. PCC pavement of the north connecting taxiway (feature T1A) was in excellent condition. The NW end of the parallel taxiway (feature T2A), which is 19-21-19-in. PCC pavement, was in only fair condition. The major defects in this feature were longitudinal cracks, and the minor defects were principally longitudinal shrinkage cracks that will probably develop into major defects. The 19-in. PCC pavement in the parallel taxiway at the intersection of taxiway L (feature T3A) was in a poor to failed condition. This section had 21 slabs that contained longitudinal cracks; 15 of the 16 slabs in the center lane contained longitudinal cracks. Feature T4A, which is asphaltic concrete (AC), was in only fair condition. This area had several contraction cracks and contained some slight rutting. Feature T5A was also in a poor to failed condition. Of 165 slabs in this area, 106 contained at least one major defect. Only two slabs in the 17-in. pavement adjoining the apron did not have a major defect. The center lane, which is 19-in. pavement, had 42 slabs with major defects, but the west lane (17-in. pavement) had only 11 slabs with major defects. Feature T6A (AC pavement) was in fair condition. The area of the parallel taxiway at sta 20+27 to 24+02 was in very good condition. Plate 3 shows a comparison of defects (i.e., between those observed in this survey and those in the 1959 and 1961 surveys) in the NW end of the NW-SE parallel taxiway and in the north connecting taxiway. Feature T8A was in excellent condition; this area had recently been overlaid (photo 1). The south connecting taxiway (feature T9A), which is 17-19-17-in. RPCC pavement, was in excellent condition. Only 10 major defects were noted, and these cracks were held tightly together by the reinforcement. Photos 2 and 3 show the movement of the south connecting taxiway in the curve near the SE end of the parallel taxiway. Taxiways L and K were in

excellent and very good conditions, respectively. Taxiway C to the ANG apron was in good condition. A small section of former AC pavement at the intersection of taxiway C and the apron access taxiway was replaced with a 10-in. PCC pavement with insulation between the base course and the subgrade (photo 4).

Aprons

12. The heavy-load operational apron (feature A9B) was in a poor to failed condition. There was a considerable increase in the number of major defects between the 1959 and 1961 surveys; however, between 1961 and 1972, the percentage of slabs having no defects decreased from 74.1 to 48.4 percent. Thus, 25.7 percent of the slabs contained major defects in 1972 that were not present in 1961. Feature A8B, which is the extension to the heavy-load operational apron, was in excellent condition. When this extension was built, the slab size was reduced, and steps were taken to ensure in-place nonfrost susceptibility of base course materials in an effort to avoid the cracking problem that developed in the original apron. Even though the extension is only approximately 3 years newer, the percentage of slabs containing no major defects was 95 as compared with the 48.4 percent for the original apron. The expansion of the PCC pavement had resulted in broken pavement along the drains, necessitating repairs such as shown in photo 5. Shoving of the shoulder pavement had also resulted (photo 6). The north warm-up apron (feature A5B) contained only 27 slabs with major defects, 22 of which contained longitudinal cracks. This feature was in very good condition. The south warm-up apron (feature A4B) was also in very good condition. The cracks in this feature were being held tightly together by the reinforcement. The Air National Guard (ANG) apron was in very good condition.

Alert facilities

13. The former SAC alert facilities were in excellent condition, but they have not been used since 1968 when the city of Bangor acquired the airfield. At the time of this survey, the ADC alert facilities were being used by the Maine Air National Guard as an alert facility. This facility was also in excellent condition.

14. The light-load pavements not mentioned above were in fair to

good condition. Most of these pavements are either bituminous or bituminous overlays of PCC.

Frost Action

Objectives of inspection

15. The airfield pavements at BIA were inspected for evidence of detrimental frost effects on 26 and 27 April 1972 by a team from the New England Division. (The New England Division also participated in the U. S. Army Engineer Waterways Experiment Station condition survey of August 1972.) The objectives of the inspection were to determine:

a. Any adverse effects of frost heave to the airfield pavements during the winter months.

b. Any traffic-induced pavement failures that might be related to thaw weakening of the subgrades or base courses.

Frost heave

16. The airfield pavements were examined for surface irregularities indicative of differential frost heaving. The time of this inspection is believed to have been within, or shortly subsequent to, the spring thaw when the effects of nonuniform frost heave would be most apparent.

17. Inquiries were made of airport personnel regarding the development of indesirable surface roughness during the winter. The runway and taxiway pavements were found to be free of any roughness detectable in an automobile at speeds of up to 60 mph. Airport personnel reported experiencing no problems with pavement roughness during the period of operation as a commercial facility (since 1968). Some unevenness was noted in the shoulder pavements but this was attributed to age, to low-temperature contraction cracking, and to shoving by the expansion of adjacent rigid pavement features. The only substantial differential frost heaving observed during this inspection was a 1- to 3-in. upheaval of several taxiway light bases and observation riser pipes of the underdrain system.

18. Significant cracking developed in the heavy-load operational

apron (feature A9B) during the first winter after its completion (1956-57) before the pavement had been used by aircraft. An investigation (see subparagraph 6b(2)) indicated that the base course of this feature contained frost-susceptible material within which ice lenses had formed. Observations of this pavement during the two subsequent winters (subparagraph 6b(3)) showed that the cracking progressed each winter. Its present poor to failed condition (paragraph 12) is considered principally due to differential frost heaving. Although similar damage has not occurred in all rigid pavement features having frost-susceptible base or subbase courses, it is significant that all of the heavy-load pavement features rated in table 2 as being in less than good condition do have frost-susceptible base courses.

19. The performance study referenced in subparagraph 6b(3) also includes heave observations of the center 100-ft-wide portion (feature R5C) and the outer portions (feature R6D) of the runway interior. These pavements have a combined thickness of 62 in. of pavement, base, and subbase, of which the lower 18 in. is frost susceptible (F2*). Uniform heaving of approximately 1 in. with negligible differential heaving was observed when substantial subgrade frost penetration had occurred. During this study, differential heaving on the order of 3/4 in. was observed at some of the light panels inserted in the runway pavement. These inserts had been reported as a source of pavement roughness during previous winters by base operations personnel.

20. Heave observations were also made from 1959-62 of the heavy-load apron extension and through taxiway (features A8B and T10A) and of the hangar access apron (feature A2B) for comparison with the runway performance, since these pavements incorporate nonfrost-susceptible materials for their full 62-in. combined thickness.** Very small

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* F2 denotes gravelly soils in which 10 to 20 percent (by weight) of the particles are finer than 0.02 mm or sands in which 3 to 15 percent of the particles are finer than 0.02 mm.

** G. D. Gilman, "Results of Instrumentation of 1958 Rigid Pavement Construction for Verification of Frost-Condition Design Criteria, Dow AFB, Bangor, Maine, and Loring AFB, Limestone, Maine," Instruction Report 45, December 1967, U. S. Army Cold Regions Research and Engineering Laboratory, Hanover, New Hampshire.

increments of frost heave were observed when frost penetration was limited to the subbase, as would occur in mild winters. Heaving on the same order as that observed in the runway pavements (paragraph 19) was observed when substantial subgrade frost penetration had occurred.

Freezing indices

21. A freezing index of 1875 degree-days was used for the design of the heavy-load pavement system. This value represents the index for the 1947-48 winter, which, at that time, was the coldest in the past 10 years as indicated by temperature data from the base weather station. On the basis of temperature data from the same source up to and including the 1970-71 winter, a design index of 1830 degree-days is representative of the three coldest winters in the past 30 years (1970-71, 1947-48, 1943-44). Average daily temperatures for the transition months at both ends of the freezing seasons were used in both of these determinations. Seasonal freezing indices from the same source since the 1955-56 winter are tabulated below:

Freezing Season	Freezing Index degree-days	Freezing Season	Freezing Index degree-days
1956-57	957*	1964-65	1486
1957-58	675*	1965-66	940
1958-59	1508*	1966-67	1242
1959-60	817*	1967-68	1419
1960-61	1300*	1968-69	1045
1961-62	1201*	1969-70	1280
1962-63	1357	1970-71	1888
1963-64	1241	1971-72**	--

* Computed from average daily temperatures. All other values computed from average monthly temperatures for full freezing season.

** No data available; however, this was not a severe winter at Bangor.

These tabulated indices are for winters since the completion of the first heavy-load pavements and, as is noted, were determined in part on the basis of either average daily or average monthly temperatures. Indices based solely on average monthly temperatures are generally somewhat lower than those which consider average daily temperature for the

transition months. (Use of either daily or monthly temperatures for months entirely within the freezing season results in essentially the same accumulation of degree-days.) The two types of indices tabulated, therefore, are not directly comparable but do indicate approximately the severity of the seasons covered. On this basis, the 1970-71 season is the coldest in the past 30 years, and several severe winters have been experienced.

22. For a design freezing index of 1830 degree-days, current criteria indicate that a combined thickness of about 100 in. is needed to prevent subgrade freezing. Combined thicknesses of 69 to 77 in. are required for limited subgrade frost penetration design. The specific penetrations are dependent on base and subgrade water content and density and, to some extent, on pavement thickness. The actual combined thicknesses of pavement and nonfrost-susceptible base for the heavy-load pavements range from 19 to 62 in., and the combined thicknesses of pavement and all base and subbase materials range from 50 to 62 in. Accordingly, it is probable that freezing of frost-susceptible material has occurred annually under some pavements and that substantial subgrade freezing has occurred several times under all pavements. All evidence indicates that frost heaving due to subgrade freezing has been remarkably uniform and has not had a significant effect on pavement performance. Freezing of frost-susceptible bases has had a marked adverse effect on some pavements but no apparent significant effect on many others.

Groundwater

23. During this inspection, readings were made of three groundwater wells to establish groundwater levels beneath the heavy-load operational apron extension (feature A8B) and the hangar access apron (feature A2B). Beneath the apron extension, groundwater was found to be at depths between 3.4 and 3.8 ft below pavement grade. Beneath the hangar access apron, groundwater was found to be at a depth of 9.0 ft. The groundwater levels beneath the apron extension indicate that the underdrainage for that feature is not functioning adequately and that the lower base course is saturated. This apparently has tended to limit the depth of subgrade freezing and has contributed, together with the

47-in. nonfrost-susceptible base, to the excellent performance of this feature. It is believed that similar groundwater situations prevail in some of the other pavement features.

Thaw weakening

24. The extent of thaw weakening of the subgrades and base courses could not be readily determined by inspection of the pavements, since localized failures usually are repaired soon after they occur and are not easily examined during a condition survey. It is often impossible, consequently, to establish by inspection whether a failure is the result of thaw weakening or of design deficiencies with respect to normal (nonfrost) subsoil and traffic conditions. Some limited perception of the severity of thaw weakening effects can be gained, however, by comparing the performance of certain pavement features with what might be expected in the light of current frost design criteria.

25. The only heavy-load flexible pavement features at this airfield are portions of the parallel taxiway (features T4A, T6A, and T8A). According to current normal (nonfrost) design criteria (265,000-lb gear loads), these features are deficient by 1 in. in pavement thickness and by 4 in. in 100 CBR base course material. It would be expected, therefore, that intensive heavy-load traffic would result in longitudinal cracking and rutting. The actual performance of these pavements appears to be consistent with this expectation. Features T4A and T6A were in only fair condition. Feature T8A was in excellent condition, but it had recently been overlaid with 4 in. of AC, a fact which would indicate that the pavement had developed distress. In addition, the combined thickness of pavement and base of these features is 50 in., which is at least 19 in. less than that required for limited subgrade frost penetration design (paragraph 22). Thaw weakening of the subgrade may have accelerated the development of distress.

26. The slab thicknesses of the heavy-load rigid pavements at BIA are adequate for the current 265,000-lb gear load design criteria for nonfrost conditions (normal-period subgrade modulus k), except for features T11A, A2B, A8B, and A9B. Of the nonconforming features, only the heavy-load apron (feature A9B) showed significant distress, and

(as is discussed in paragraph 18) the major damage to this feature is not believed to have been load induced. Slab thickness deficiencies with respect to current nonfrost-period design criteria, therefore, are not indicated to be significant factors in the performance of the heavy-load rigid pavements. On the other hand, the slab thicknesses are notably deficient under current criteria for frost-design operations under the reduced subgrade modulus k_f, which corresponds to the F2 frost-susceptibility classifications of the base and subbase courses. The conditions of several pavement features seem to have been affected by this deficiency.

27. Ten of the heavy-load rigid pavement features have frost-susceptible base courses (features R7A, R8D, R9B, R10D, T1A, T2A, T3A, T5A, A5B, and A9B), and, as is shown by the k_f values in table 2, these experience a very substantial reduction in bearing capacity during and directly following the frost-melting period. Of these, three were in poor condition (features T3A, T5A, and A9B); one was in excellent condition (feature T1A); and one was in fair condition (feature T2A). The remaining features were in very good to excellent condition. It is significant that two of these features (R8D and R10D) receive infrequent heavy-load traffic. It appears, therefore, that thaw weakening of frost-susceptible base courses is a major influence on the performance of the more heavily trafficked pavements.

28. Eight of the heavy-load rigid pavement features have an 18-in. layer of frost-susceptible subbase material directly above the subgrade and 25 to 29 in. of nonfrost-susceptible material above the subbase (features R1A, R2A, R3B, R4D, R5C, R6D, T9A, and A4B). These features, as are shown by the k_f values in table 2, experience moderate reductions in bearing capacity during and directly following the frost-melting period. Since all of these features were in very good to excellent condition, it does not appear that thaw weakening of this frost-susceptible subbase material has influenced pavement performance significantly.

29. All of the heavy-load pavements, except features T5A and A9B, have a combined thickness of 62 in. of pavement and base over the

subgrade. As is discussed in paragraphs 27 and 28, most of the pavements do not provide nonfrost-susceptible protection to this depth. A 62-in. combined nonfrost-susceptible thickness is not sufficient in accordance with limited subgrade frost penetration design criteria (paragraph 22), and substantial subgrade frost penetration in the colder years has probably occurred. The very good to excellent condition of the pavements having a 62-in. nonfrost-susceptible combined thickness (features T7A, T10A, A1B, A2B, A8B, and T11A with a 60-in. combined thickness) indicates that subgrade freezing has not had a significant effect on pavement performance.

30. From the foregoing discussion, the following conclusions have been drawn relative to the effect of thaw weakening on the performance of the heavy-load rigid pavement features at BIA.

a. Thaw weakening of frost-susceptible base courses has had a significant adverse effect on the performance of heavily trafficked features.

b. Thaw weakening of frost-susceptible subbase courses has not had a significant effect on pavement performance.

c. Thaw weakening of the subgrade is not indicated to have had a significant effect on pavement performance but may have had some minor effect on the performance of the two features having the least combined pavement and base course thickness (features T5A and A9B).

Performance of insulated pavement

31. A test section of insulated rigid pavement (feature T13B) was constructed during the summer of 1971 in taxiway C near the ANG apron. The test section consists of a 10-in. PCC pavement, 16-in. gravel base course, and a 2-in. insulation layer with a minimum 1-in. sand leveling course. As is shown in photo 4, this pavement feature was in excellent condition after a year of service.

Maintenance

32. Records concerning maintenance that had been performed at BIA were not available. A section of the parallel taxiway between sta -1+30 and 20+27 was overlaid with 4 in. of AC in July 1972. Other maintenance

performed has consisted of some crack sealing of the shoulder pavements and the repair of the heavy-load operational apron at drainage structures.

Evaluation

33. A formal evaluation is not included in this report. It appears that the pavements are adequately supporting the loads presently being applied to them.

Table 1

Airport Design and Construction History

Pavement Facility	Pavement: Dimensions, ft: Length	Width	Type	Thickness in.	Construction: Year(s)	Agency	Design Criteria
Primary runway							
Ends (2)	1000	300	PCC and RPCC	19 and 17	1955-58	CE	Bicycle arrangement: 240,000-lb gear load on twin-twin wheels spaced 37-62-37 in. c-c and 267-sq-in. contact area per tire
Interior	9400	300	PCC and RPCC	15	1955-58	CE	Bicycle arrangement: 240,000-lb gear load on twin-twin wheels spaced 37-62-37 in. c-c and 267-sq-in. contact area per tire
Primary taxiway							
NW end and through taxiway	2912	75	PCC	19*	1955-56	CE	Bicycle arrangement: 240,000-lb gear load on twin-twin wheels spaced 37-62-37 in. c-c and 267-sq-in. contact area per tire
Through taxiway	3218	75	PCC	21*	1955-56	CE	Bicycle arrangement: 240,000-lb gear load on twin-twin wheels spaced 37-62-37 in. c-c and 267-sq-in. contact area per tire
Through taxiway	4670	75	AC	4	1955-56	CE	Tricycle arrangement: 100,000-lb gear load on twin wheels spaced 37.5 in. c-c, with 267-sq-in. contact area per tire
Apron intersection	375	75	PCC	19*	1959	CE	Bicycle arrangement: 265,000-lb gear load on twin-twin wheels spaced 37-62-37 in. c-c and 267-sq-in. contact area per tire
SE end	1820	75	RPCC	19*	1955-58	CE	Bicycle arrangement: 240,000-lb gear load on twin-twin wheels spaced 37-62-37 in. c-c and 267-sq-in. contact area per tire
Heavy-load apron system							
Operational apron	1365	1000	PCC	15	1955-56	CE	Tricycle arrangement: 100,000-lb gear load on twin wheels spaced 37.5 in. c-c, with 267-sq-in. contact area per tire
Operational apron extension and taxiway	1470	775	PCC	19 and 15	1958-59	CE	Bicycle arrangement: 265,000-lb gear load on twin-twin wheels spaced 37-62-37 in. c-c and 267-sq-in. contact area per tire
Hangar access aprons	Varies	Varies	PCC	12	1958-59	CE	Bicycle arrangement: 160,000-lb gear load on twin-twin wheels spaced 37-62-37 in. c-c and 267-sq-in. contact area per tire
South warm-up apron	Varies	Varies	RPCC	17	1955-58	CE	Bicycle arrangement: 240,000-lb gear load on twin-twin wheels spaced 37-62-37 in. c-c and 267-sq-in. contact area per tire
North warm-up apron	Varies	Varies	PCC	17	1955-56	CE	Bicycle arrangement: 240,000-lb gear load on twin-twin wheels spaced 37-62-37 in. c-c and 267-sq-in. contact area per tire
SAC alert facilities	Varies	Varies	PCC	18	1958-59	CE	Bicycle arrangement: 265,000-lb gear load on twin-twin wheels spaced 37-62-37 in. c-c and 267-sq-in. contact area per tire
Light-load taxiway system							
Taxiway C	1180	75	PCC	17	1955-56	CE	Tricycle arrangement: 100,000-lb gear load on twin wheels spaced 37.5-in c-c, with 267-sq-in. contact area per tire
Taxiway C	2552	Varies	DBST**		1943 and 1956	CE	Tricycle arrangement: 25,000-lb, single-wheel load with 200-psi tire pressure
Taxiway C	865	75	AC	5	1955-56	CE	Tricycle arrangement: 25,000-lb, single-wheel load with 200-psi tire pressure
Light-load aprons							
Operational apron	Varies	Varies	AC	3	1955-56	CE	Tricycle arrangement: 25,000-lb, single-wheel load with 200-psi tire pressure
Operational apron	Varies	Varies	AC	4	1954-55	CE	Tricycle arrangement: 25,000-lb, single-wheel load with 200-psi tire pressure
Operational apron	Varies	Varies	DBST**		1942 and 1954-56	CE	Tricycle arrangement: 25,000-lb, single-wheel load with 200-psi tire pressure
Operational apron taxiway	950	75	AC	3-1/2	1943	CE	World War II medium-bomber loads
Hangar access apron	Varies	Varies	RPCC	8-6-8	1941	CE	World War II medium-bomber loads
ADC alert apron and taxiway	Varies	Varies	PCC	9	1958-59	CE	Tricycle arrangement: 25,000-lb, single-wheel load with 200-psi tire pressure
Miscellaneous pavements							
ANG apron	Varies	Varies	AC	4	1954-55	CE	Tricycle arrangement: 25,000-lb, single-wheel load with 200-psi tire pressure
ANG apron extension	Varies	Varies	PCC	9	1958	CE	Tricycle arrangement: 25,000-lb, single-wheel load with 200-psi tire pressure
Access taxiway	120	75	AC	3-1/2	1942	CE	World War II medium-bomber loads
Access apron	Varies	Varies	PCC	10-7-10	1942	CE	World War II medium-bomber loads
Commercial facilities	Varies	Varies	AC	3	1955-56	CE	Tricycle arrangement: 25,000-lb, single-wheel load with 200-psi tire pressure
Taxiway L	900	75	RPCC	17	1955-58	CE	Bicycle arrangement: 240,000-lb gear load on twin-twin wheels spaced 37-62-37 in. c-c and 267-sq-in. contact area per tire
Taxiway K	900	75	PCC	15	1958-59	CE	Bicycle arrangement: 265,000-lb gear load on twin-twin wheels spaced 37-62-37 in. c-c and 267-sq-in. contact area per tire
Blast pads (2)	150	300	AC	2	1957-58	CE	Bicycle arrangement: 240,000-lb gear load on twin-twin wheels spaced 37-62-37 in. c-c and 267-sq-in. contact area per tire
Overruns (2)	850	300	DBST		1957-58	CE	Bicycle arrangement: 240,000-lb gear load on twin-twin wheels spaced 37-62-37 in. c-c and 267-sq-in. contact area per tire
Shoulders		50	AC	2	1957-59	CE	Tricycle arrangement: 10,000-lb, single-wheel load with 100-psi tire pressure
Shoulders	3000	50	DBST		1942-43	CE	World War II medium-bomber loads

Note: CE denotes Corps of Engineers. Three dimensions under pavement thickness denotes thickened-edge slabs.
* Channelized pavement thickness.
** Overlay.

Table [illegible]

SUMMARY OF PHYSICAL PROPERTY DATA

FACILITY Bangor International Airport, Bangor, Maine FACILITY NUMBER AND IDENTIFICATION		LENGTH FT	WIDTH FT	OVERLAY PAVEMENT THICK. IN.	OVERLAY PAVEMENT DESCRIPTION	OVERLAY PAVEMENT FLEX. STR PSI	PAVEMENT THICK. IN.	PAVEMENT DESCRIPTION	PAVEMENT FLEX. STR PSI	BASE THICK. IN.	BASE CLASSIFICATION	BASE CBR OR K	SUBGRADE CLASSIFICATION	SUBGRADE CBR OR K	GENERAL CONDITION OF AREA CONSIDERED
R1A	NW-SE runway; SE end, 1st 500 ft	Varies	Varies				19	Reinforced portland cement concrete (0.112% reinforced steel)	700	6 19 18	Base-gravel sand (SW) NFS Subbase-gravel sand (SW) NFS Silty gravel sand (SW-SM) F2	350 k_r200	Clay (CL) F3		Excellent
R2A	NW-SE runway; SE end, 1st 500 ft, 100-ft section	500	100				17	Reinforced portland cement concrete (0.127% reinforced steel)	700	27 18	Base-gravel sand (SW) NFS Subbase-silty gravel sand (SW-SM) F2	350 k_r210	Clay (CL) F3		Excellent
R3B	NW-SE runway; SE end, 2nd 500 ft, center 100 ft	500	100				17	Reinforced portland cement concrete	700	6 21 18	Base-gravel sand (SW) NFS Subbase-gravel sand (SW) NFS Silty gravel sand (SW-SM) F2	350 k_r210	Clay (CL) F3		Excellent
R4D	NW-SE runway; SE end, 2nd 500 ft, outside edges	Varies	100				17	Portland cement concrete	700	6 21 18	Base-gravel sand (SW) NFS Subbase-gravel sand (SW) NFS Silty gravel sand (SW-SM) F2	350 k_r210	Clay (CL) F3		Excellent
R5C	NW-SE runway interior, center 100 ft	9440	100				15	Reinforced portland cement concrete	700	6 23 18	Base-gravel sand (SW) NFS Subbase-gravel sand (SW) NFS Silty gravel sand (SW-SM) F2	350 k_r230	Clay (CL) F3		Excellent
R6D	NW-SE runway interior outside edges	9440	100				15	Portland cement concrete	700	6 23 18	Base-gravel sand (SW) NFS Subbase-gravel sand (SW) NFS Silty gravel sand (SW-SM) F2	350 k_r250	Clay (CL) F3		Excellent
R7A	NW-SE runway; NW end, 1st 500 ft	Varies	Varies				19	Reinforced portland cement concrete (0.112% reinforced steel)	700	6 37	Base-silty gravel sand (SW-SM) F2 Subbase-silty gravel sand (SW-SM) F2	350 k_r35	Clay (CL) F3		Excellent
R8D	NW-SE runway; NW end, 1st 500 ft, 100-ft section	500	100				17	Portland cement concrete	700	45	Base and subbase silty gravel sand (SW-SM) F2	350 k_r35	Clay (CL) F3		Excellent
R9B	NW-SE runway; NW end, 2nd 500 ft, center 100 ft	500	100				17	Reinforced portland cement concrete (0.12% reinforced steel)	700	6 39	Base-silty gravel sand (SW-SM) F2 Subbase-silty gravel sand (SW-SM) F2	350 k_r35	Clay (CL) F3		Excellent
R10D	NW-SE runway; NW end, 2nd 500 ft, outside edges	Varies	100				17	Portland cement concrete	700	6 39	Base-silty gravel sand (SW-SM) F2 Subbase-silty gravel sand (SW-SM) F2	350 k_r35	Clay (CL) F3		Excellent

WES FORM 1000
MAR 1958

Table 2 (Continued)

SUMMARY OF PHYSICAL PROPERTY DATA

FACILITY Bangor International Airport, Bangor, Maine				OVERLAY PAVEMENT			PAVEMENT			BASE			SUBGRADE		GENERAL CONDITION OF AREA CONSIDERED
FACILITY NUMBER AND IDENTIFICATION		LENGTH FT	WIDTH FT	THICK. IN.	DESCRIPTION	FLEX. STR PSI	THICK. IN.	DESCRIPTION	FLEX. STR PSI	THICK. IN.	CLASSIFICATION	CBR OR K	CLASSIFICATION	CBR OR K	
T1A	North connecting taxiway	1145±	75				19	Portland cement concrete	700	43	Base-silty gravel sand (SP-SM) F2	350 k_r35	Clay (CL) F3		Excellent
T2A	NW-SE parallel taxiway sta 66+82 to 99+00	3218	75				19-21-19	Portland cement concrete	660	41	Silty gravel sand (SP-SM) F2	420 k_r35	Bedrock		Fair
T3A	NW-SE parallel taxiway sta 62+80 to 66+82	402	75				19	Portland cement concrete	700	43	Base-silty gravel sand (SP-SM) F2	350 k_r35	Clay (CL) F3		Poor to Failed
T4A	NW-SE parallel taxiway sta 50+15 to 62+80	1265	75				4	Asphaltic concrete		6 40	Base-crushed stone Subbase-gravelly sand (SP)	100 50	Clay (CL) F3	Natural 4 Compacted 8	Fair
T5A	NW-SE parallel taxiway sta 36+50 to 50+15	1365	75				17-19-17	Portland cement concrete	680	34	Silty gravel sand (SP-SM) F2	350 k_r35	Clay (CL) F3		Poor
T6A	NW-SE parallel taxiway sta 24+02 to 36+50	1248	75				4	Asphaltic concrete		6 40	Base-crushed stone Subbase-gravelly sand (SP)	100 50	Clay (CL) F3	Natural 4 Compacted 8	Fair
T7A	NW-SE parallel taxiway sta 24+02 to 20+27 apron intersection	375	75				19	Portland cement concrete	700	43	Sandy gravel (GW) NFS	350 k_r250	Clay (CL) F3		Very good
T8A	NW-SE parallel taxiway sta -1+30 to 20+27	2157	75	4	Asphaltic concrete		4	Asphaltic concrete		6 40	Base-crushed stone Subbase-gravelly sand (SP)	100 50	Clay (CL) F3	Natural 4 Compacted 8	Excellent
T9A	NW-SE parallel taxiway and south connecting taxiway -1+30 to runway	1320	75				17-19-17	Reinforced portland cement concrete	700	25 18	Base-gravelly sand (SW) NFS Subbase-silty gravel sand (SW-SM) F2	350 k_r200	Clay (CL) F3		Excellent
T10A	Heavy-load operational apron extension and taxiway	1470 575	68 75				19	Portland cement concrete	700	43	Sandy gravel (GW) NFS	350 k_r250	Clay (CL) F3		Excellent
T11A	Apron through taxiway	1550	50				15	Portland cement concrete	700	45	Sand and gravel NFS	350 k_r260	Clay (CL) F3		Very good
T12B	Taxiway C	1180	75				17	Portland cement concrete	680	45	Silty gravel (SW-SM) F2	350 k_r35			Very good
T13B	Insulated section of taxiway C at SW entrance to ANG apron	150	75				10	Portland cement concrete		16 2	Gravel Polystyrene		Clay (CL) F3		Excellent
T14B	Taxiway C from sta 25+98 to insulated section			1.5	Asphaltic concrete		5	Asphaltic concrete		27	Gravel	50	Clay (CL) F3	Natural 4 Compacted 8	Good

WES FORM 1000
MAR 1958

(2 of 4 sheets)

Table 2 (Continued)

SUMMARY OF PHYSICAL PROPERTY DATA

FACILITY Bangor International Airport, Mangor, Maine				OVERLAY PAVEMENT			PAVEMENT			BASE			SUBGRADE		GENERAL CONDITION OF AREA CONSIDERED
FACILITY NUMBER AND IDENTIFICATION		LENGTH FT	WIDTH FT	THICK. IN.	DESCRIPTION	FLEX. STR PSI	THICK. IN.	DESCRIPTION	FLEX. STR PSI	THICK. IN.	CLASSIFICATION	CBR OR K	CLASSIFICATION	CBR OR K	
T15C	Taxiway L	900	75				17	Reinforced portland cement concrete	700	27 18	Base-gravel sand (SW) NFS Subbase-silty gravel sand (SW-SM) F2	350 k_r 210	Clay (CL) F3		Excellent
T16C	Taxiway K	900	75				15	Portland cement concrete	700	47	Sandy gravel (SW) NFS	350 k_r 275	Clay (CL) F3		Very good
A1B	SAC alert stubs and taxiway	Irreg-ular	Irreg-ular				18	Portland cement concrete	700	44	Sandy gravel (GW) NFS	350 k_r 250	Clay (CL) F3		Excellent
A2B	Hangar access aprons	Irreg-ular	Irreg-ular				12	Portland cement concrete	700	50	Sandy gravel (GW) NFS	350 k_r 280	Clay (CL) F3		Excellent
A3B	ADC alert apron and taxiway	Irreg-ular	Irreg-ular				9	Portland cement concrete	700	53	Sandy gravel (GW) NFS	350 k_r 300	Clay (CL) F3		Excellent
A4B	South warm-up apron	Irreg-ular	Irreg-ular				17	Reinforced portland cement concrete	700	27 18	Base-gravel sand (SW) NFS Subbase-silty gravel sand (SW-SM) F2	350 k_r 210	Clay (CL) F3		Very good
A5B	North warm-up apron	Irreg-ular	Irreg-ular				17	Portland cement concrete	700	45	Silty gravel sand (SW-SM) F2	350 k_r 35	Clay (CL) F3		Very good
A6B	ANG apron extension	717	Irreg-ular				9	Black portland cement concrete	700	53	Gravelly sand (SW) NFS	350 k_r 300	Clay (CL) F3		Excellent
A7B	ANG apron	Irreg-ular	425				4	Asphaltic concrete		6 10 8	Sandy gravel (GW) NFS Gravelly sand (SW-SM) Gravelly sand NFS	50 40 30	Clay (CL) F3	8	Good
A8B	Heavy-load operational apron extension	1470	775				15	Portland cement concrete	700	47	Sandy gravel (GW) NFS	350 k_r 275	Clay (CL) F3		Excellent
A9B	Heavy-load operational apron	1365	1000				15	Portland cement concrete	680	38	Silty gravel sand (SW-SM) F2	350 k_r 225	Clay (CL) F3		Poor
A10B	Operational apron	Irreg-ular	Irreg-ular	1.5	Tar rubber		1.5	Asphaltic concrete		6 10 8	Base-crushed stone NFS Subbase-gravelly sand (SW-SM) Gravelly sand (SW-SM)	100 40 30	Clay (CL) F3	Com-pacted 8 Natu-ral 4	Fair
A11B	Operational apron	330	225	1.5	Tar rubber		2.5	Asphaltic concrete		6 10 8	Base-sandy gravel (GW) NFS Subbase-gravelly sand (SW-SM) Silty gravel sand (SW-SM)	50 40 30	Clay (CL) F3	Com-pacted 8 Natu-ral 4	Fair
A12B	Operational apron	Irreg-ular	Irreg-ular	1.5 2 2.5	Tar rubber Asphaltic concrete Asphaltic concrete		3.5	Asphaltic concrete		18	Sandy gravel (GW)	50	Clay (CL) F3	Com-pacted 8 Natu-ral 4	Fair

WES FORM MAR 1958 1000

(3 of 4 sheets)

Table 2 (Continued)

SUMMARY OF PHYSICAL PROPERTY DATA

FACILITY Bangor International Airport, Bangor, Maine				OVERLAY PAVEMENT			PAVEMENT			BASE			SUBGRADE		GENERAL CONDITION OF AREA CONSIDERED
FACILITY NUMBER AND IDENTIFICATION		LENGTH FT	WIDTH FT	THICK. IN.	DESCRIPTION	FLEX. STR PSI	THICK. IN.	DESCRIPTION	FLEX. STR PSI	THICK. IN.	CLASSIFICATION	CBR OR K	CLASSIFICATION	CBR OR K	
A13B	Operational apron	Irreg-ular	Irreg-ular	1.5 2 2.5	Tar rubber Asphaltic concrete Asphaltic concrete			Double bituminous surface treatment		22	Sandy gravel (GW)	50	Clay (CL) F3	Com-pacted 8 Nat-ural 4	Fair
A14B	Operational apron	Varies	Varies	 1.5 2 2.5	Tapered from outside edge of feature A13B to center 37.5 ft Tar rubber Asphaltic concrete Asphaltic concrete		3.5	Asphaltic concrete		27	Sandy gravel (GW)	50	Clay (CL) F3	Com-pacted 8 Nat-ural 4	Fair
A15B	Operational apron	Irreg-ular	Irreg-ular	 1.5 2 2.5	Starts to taper out at south end of feature 50 ft from the end Tar rubber Asphaltic concrete Asphaltic concrete		6	Reinforced portland cement concrete CBR=100		18	Sandy gravel (GW)	50	Clay (CL) F3	Com-pacted 8 Nat-ural 4	Fair
A16B	Operational apron	Irreg-ular	Irreg-ular	1.5 2.5	Tar rubber Asphaltic concrete		6	Reinforced portland cement concrete		18	Sandy gravel (GW)	50	Clay (CL) F3	Com-pacted 8 Nat-ural 4	Fair
A17B	Operational apron	410	150	2	Asphaltic concrete tapered down from feature A16B north end 25 ft		6	Reinforced portland cement concrete		18	Sandy gravel (GW)	50	Clay (CL) F3	Com-pacted 8 Nat-ural 4	Fair
A18B	Operational apron	Irreg-ular	Irreg-ular	1.5 2.5	Tar rubber Asphaltic concrete		7	Portland cement concrete CBR=100		17	Sandy gravel (GW) NFS		Clay (CL) F3	Com-pacted 8 Nat-ural 4	Fair
A19B	Operational apron	200	75	1.5 4.5	Tar rubber Asphaltic concrete		7	Portland cement concrete CBR=100		17	Sandy gravel (GW) NFS		Clay (CL) F3	Com-pacted 8 Nat-ural 4	Fair
R11X	NW-SE runway blast pads	150	300				2	Asphaltic concrete		6 6/36	Crushed stone NFS Gravelly sand (SP) NFS	100 50/40	Clay (CL) F3	Com-pacted 8 Nat-ural 4	
R12X	NW-SE runway overruns	850	300					Double bituminous Surface treatment		6 6/36	Crushed stone NFS Gravelly sand (SP) NFS	100 50/40	Clay (CL) F3	Com-pacted 8 Nat-ural 4	

WES FORM 1000
MAR 1958

Table 3

DATE: August 1972		SUMMARY OF DATA - RIGID PAVEMENT CONDITION SURVEY																					AIRFIELD: Bangor International Airport Bangor, Maine		
FEATURE		SLAB SIZE FT	APPROX NO. OF SLABS	PAVE. THICK. IN.	NO. OF SLABS CONTAINING INDICATED DEFECTS																		% OF SLABS NO DEFECTS	% OF SLABS NO MAJOR DEFECTS	CONDITION
NO.	DESIGNATION				I	—	\	Δ	✱	K	~	S	J	ɟ	J	⊕	M	P	O	C	D				
R1A R2A R3B R4D	NW-SE runway 1st 1000 ft SE end	60 by 25* 15 by 12-1/2 Variable	664	17 17* 19*		7					2	2	3	2	1				1				97.4	99.0	Excel-lent
R5C R6D	NW-SE runway interior	50 by 25* 12-1/2 by 12-1/2 Variable	11,928	15 15*		19	3				13		4	3	2				5				98.9	99.3	Excel-lent
R7A R8D R9B R10D	NW-SE runway 1st 1000 ft NW end	50 by 25*	932	17 17* 19*		2					3				1								99.4	98.9	Excel-lent
T1A T2A T3A	North connecting taxiway and parallel taxiway	25 by 25	579	19 19-21-19 19	184						74		2	3	3				1				58.5	69.0	Fair
T7A	Parallel taxiway sta 20+27 to 24+02	15 by 15	125	19	18			10			32				2								63.2	85.9	Very good
T9A	NW-SE parallel taxiway and south connecting taxiway	60 by 25*	113	17*- 19*- 17*	3	5	1	1			110	1	2	1	2								51.3	91.4	Excel-lent
T15C	Taxiway L	60 by 25	59	17*		3					2								1				90.0	95.0	Excel-lent

REMARKS: * This pavement is reinforced.

LEGEND:

- I LONGITUDINAL CRACK
- — TRANSVERSE CRACK
- \ DIAGONAL CRACK
- Δ CORNER BREAK
- ✱ SHATTERED SLAB
- K KEYED JOINT FAILURE
- ~ SHRINKAGE CRACK
- S SCALING
- J SPALL ON TRANSVERSE JOINT
- ɟ SPALL ON LONGITUDINAL JOINT
- J CORNER SPALL
- ⊕ SETTLEMENT
- M MAP CRACKING
- P PUMPING JOINT
- O POP-OUT
- C UNCONTROLLED CONTRACTION CRACK
- D "D" CRACKING

WES FORM NO. 2004
JUN 1972

(1 of 2 sheets)

Table 3 (Continued)

DATE: August 1972

SUMMARY OF DATA - RIGID PAVEMENT CONDITION SURVEY

AIRFIELD: Bangor International Airport
Bangor, Maine

FEATURE NO.	FEATURE DESIGNATION	SLAB SIZE FT	APPROX NO. OF SLABS	PAVE. THICK. IN.	I	—	\	Δ	✱	K	〰	S	J	↲	J	⊕	M	P	O	C	D	% OF SLABS NO DEFECTS	% OF SLABS NO MAJOR DEFECTS	CONDITION
T16C	Taxiway K	Variable	456	15	73	2	1				9											82.3	83.4	Very good
A1B	SAC alert stubs and taxiway	15 by 15	2950	18	35			1			22	1	1	2	1				4			97.8	99.4	Excel-lent
A4B	South warm-up apron	60 by 25	107	17*		12	1	4			11				1				1			77.5	86.0	Very good
A5B	North warm-up apron	25 by 25	241	17	22	1	3	1			10	2	1	1					4			81.7	88.8	Very good
A9B T5A	Heavy-load apron and parallel taxi-way, sta 50+15 to 36+50	25 by 25	2464	15	845	401	228	14	35		366	12	12	10	9				10	6		41.0	48.4	Poor
A8B T10A	Heavy-load apron extension and taxiway	Variable	3654	15	3	176	6	3			14	11	3	4	4	1			15	1		94.4	95.0	Excel-lent

REMARKS: * This pavement is reinforced.

LEGEND:

- I LONGITUDINAL CRACK
- — TRANSVERSE CRACK
- \ DIAGONAL CRACK
- Δ CORNER BREAK
- ✱ SHATTERED SLAB
- K KEYED JOINT FAILURE
- 〰 SHRINKAGE CRACK
- S SCALING
- J SPALL ON TRANSVERSE JOINT
- ↲ SPALL ON LONGITUDINAL JOINT
- J CORNER SPALL
- ⊕ SETTLEMENT
- M MAP CRACKING
- P PUMPING JOINT
- O POP-OUT
- C UNCONTROLLED CONTRACTION CRACK
- D "D" CRACKING

WES FORM NO. 2004
JUN 1972

(2 of 2 sheets)

Photo 1. General view of AC portion of parallel taxiway (feature T8A)

Photo 2. Close-up of movement of south connecting taxiway in curve near SE end of parallel taxiway

Photo 3. General view of movement of south connecting taxiway

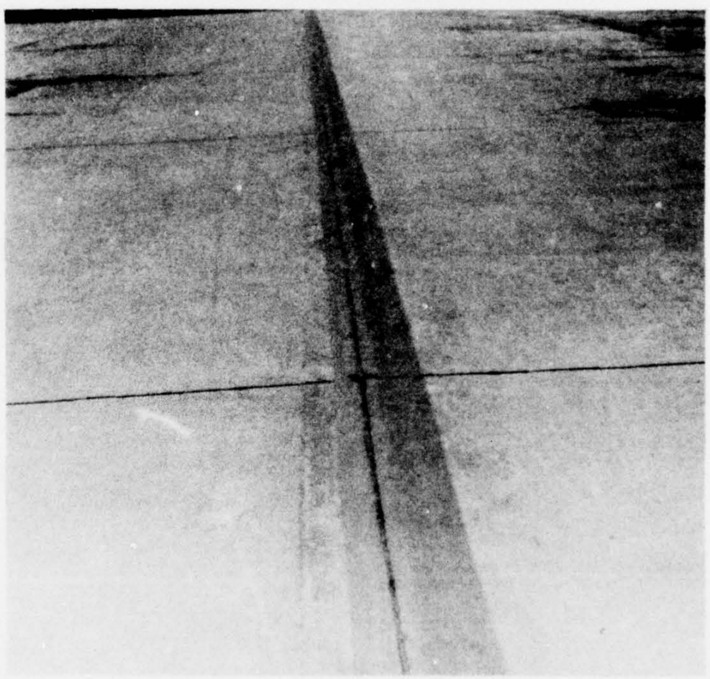
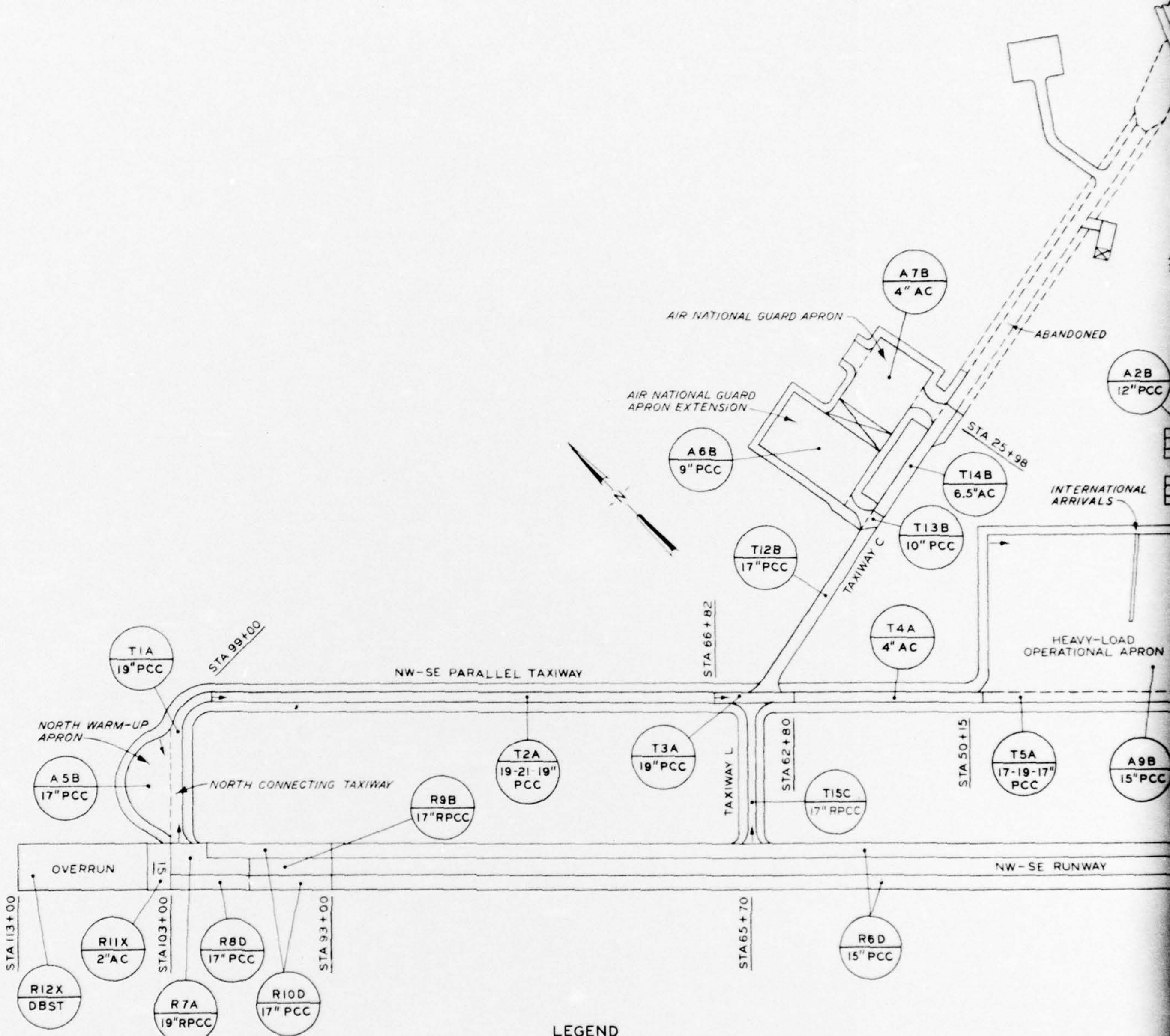


Photo 4. Insulated PCC pavement at intersection of taxiway C and ANG apron access taxiway

Photo 5. Repair along drain in heavy-load operational apron

Photo 6. Shoving of shoulder pavement along heavy-load operational apron extension



LEGEND

R2B	← FEATURE DESIGNATION (SEE NOTE 1)
2" AC	← SURFACE PAVEMENT THICKNESS AND TYPE

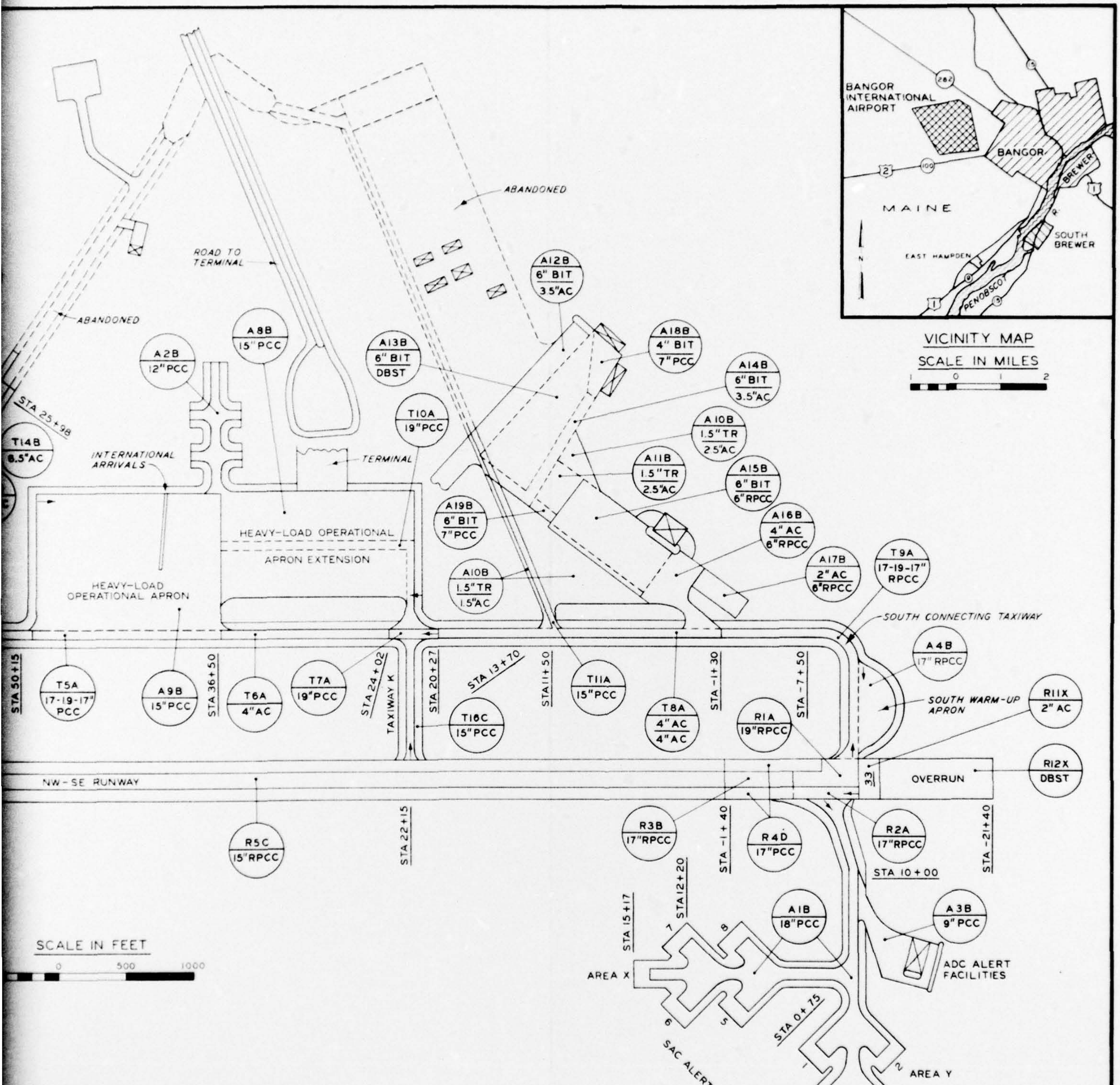
TYPE OF FEATURE
- R - RUNWAY
- T - TAXIWAY
- A - APRON

TYPE TRAFFIC AREA (SEE NOTE 2)
- A - A TYPE TRAFFIC
- B - B TYPE TRAFFIC
- C - C TYPE TRAFFIC
- D - D TYPE TRAFFIC
- X - NO TRAFFIC TYPE ASSIGNED

AC - ASPHALTIC CONCRETE
PCC - PORTLAND CEMENT CONCRETE
BIT - BITUMINOUS SURFACE
DBST - DOUBLE BITUMINOUS SURFACE TREATMENT
RPCC - REINFORCED PORTLAND CEMENT CONCRETE
→ DIRECTION OF SURVEY

SCALE IN FEET
500 0 500 10

NOTE: 1. FEATURE DESIGNATION DENOTES NUMBER OF FEATURE FOR GIVEN TRAFFIC AREA.
2. TRAFFIC AREA DESIGNATIONS AR LOAD CRITERIA.



ATURE DESIGNATION DENOTES TYPE OF FEATURE, UMBER OF FEATURE FOR GIVEN TYPE, AND TYPE AFFIC AREA.

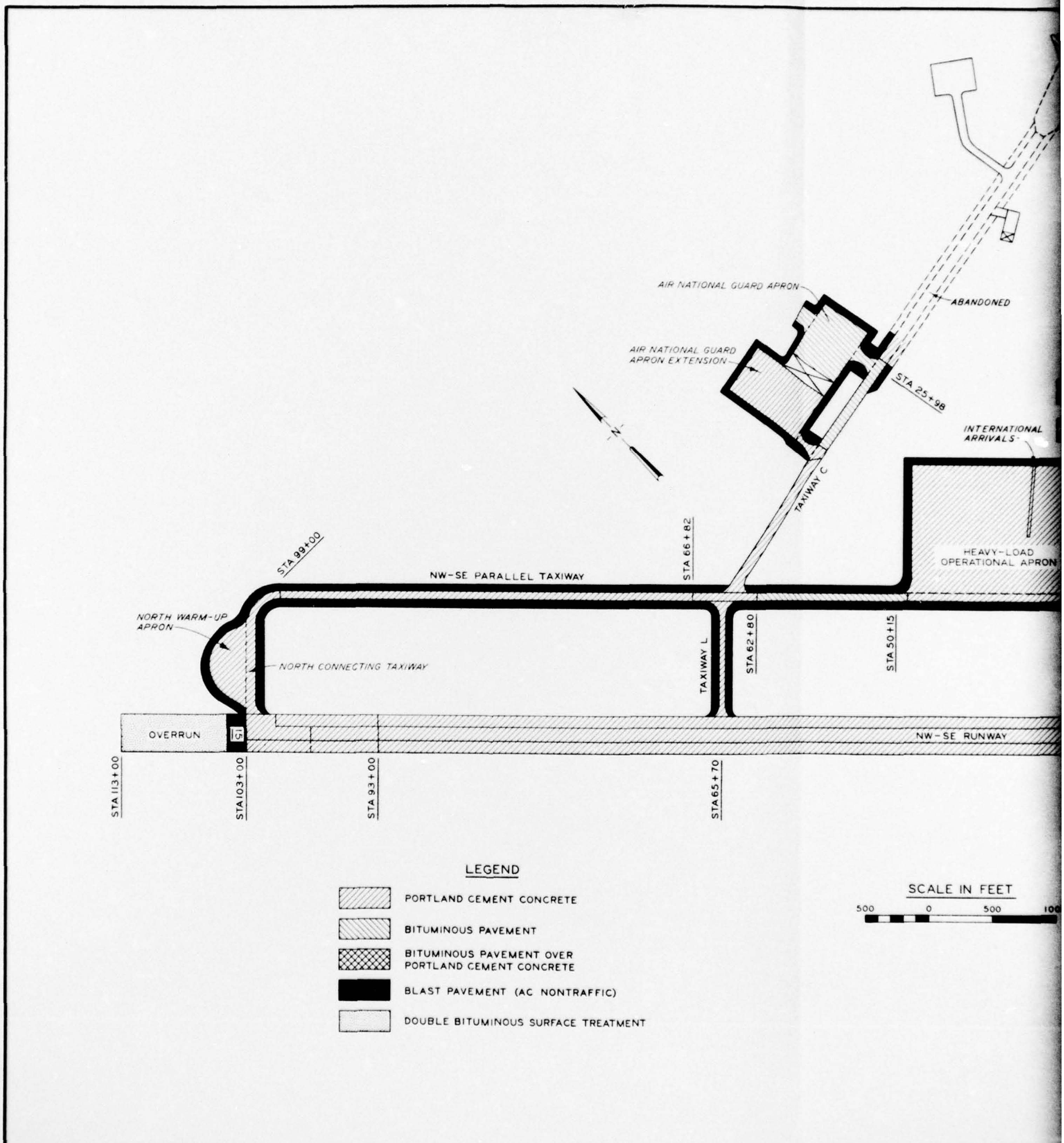
AFFIC AREA DESIGNATIONS ARE BASED ON HEAVY-AD CRITERIA.

BANGOR INTERNATIONAL AIRPORT

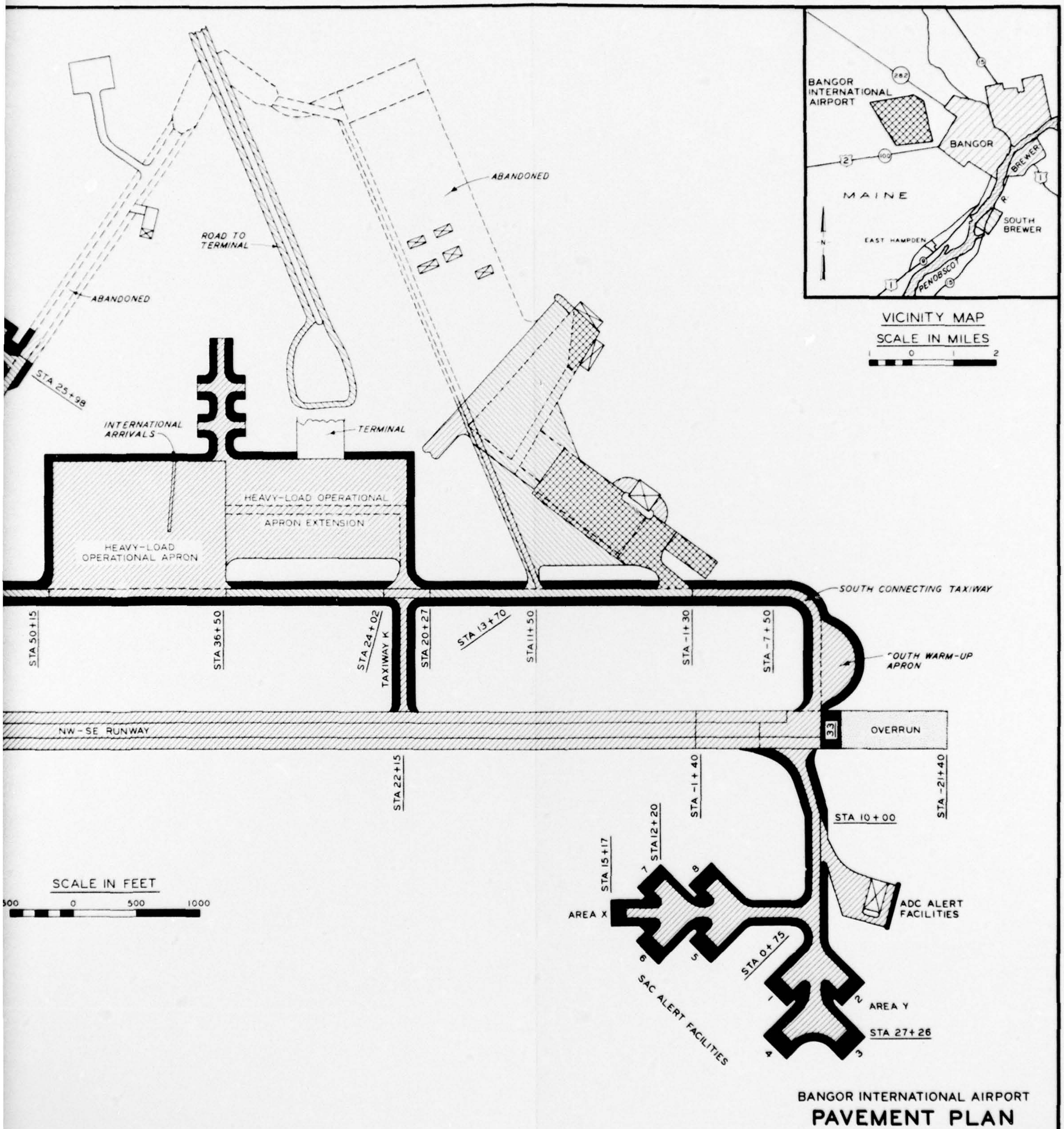
AIRFIELD LAYOUT

PLATE 1

2



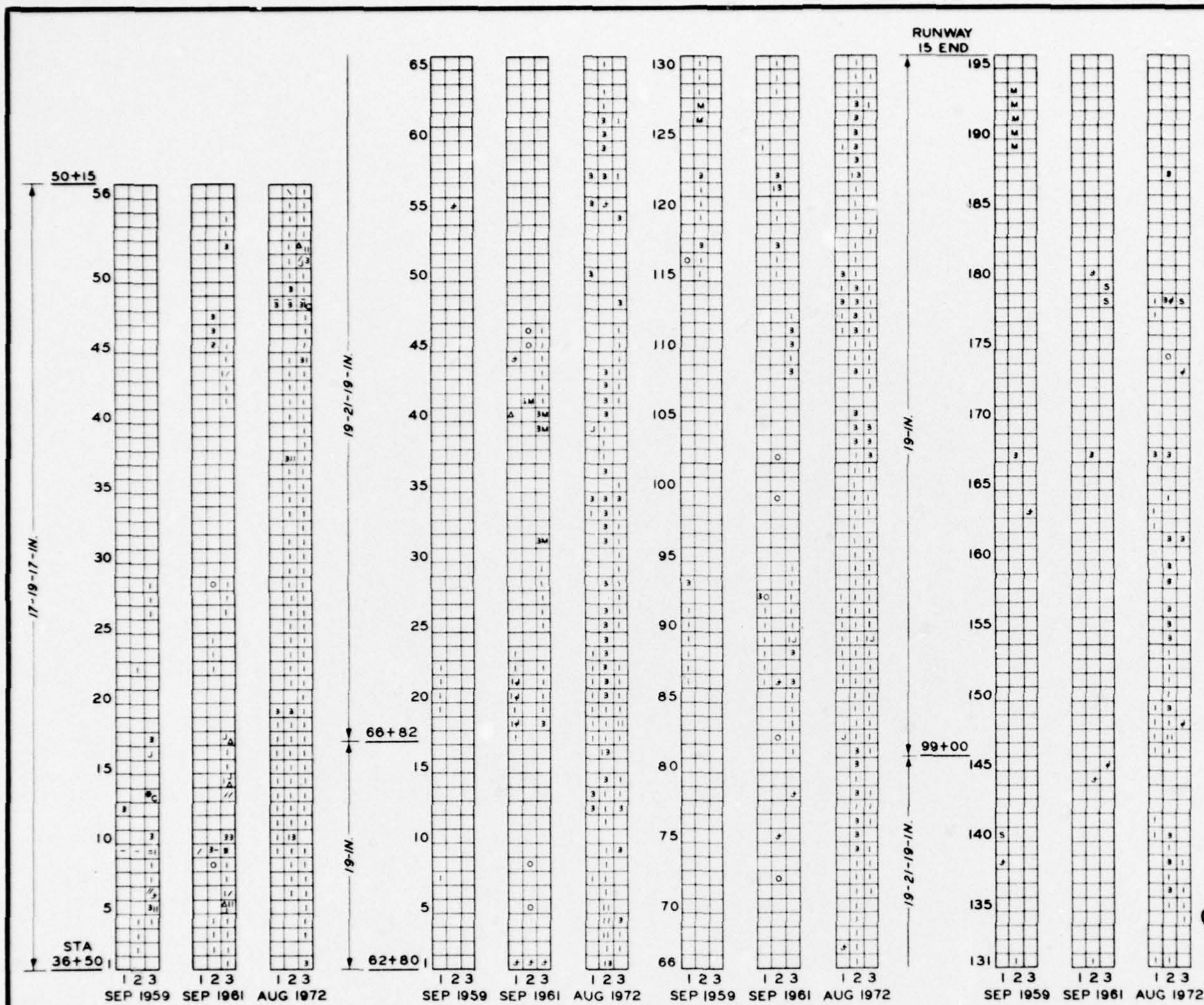
AIR NATIONAL GUARD APRON
ABANDONED
AIR NATIONAL GUARD APRON EXTENSION
STA 25+98
N
INTERNATIONAL ARRIVALS
TAXIWAY C
HEAVY-LOAD OPERATIONAL APRON
STA 99+00
STA 66+82
NW-SE PARALLEL TAXIWAY
NORTH WARM-UP APRON
NORTH CONNECTING TAXIWAY
TAXIWAY L
STA 62+80
STA 50+15
OVERRUN
15
NW-SE RUNWAY
STA 113+00
STA 103+00
STA 93+00
STA 65+70
LEGEND
PORTLAND CEMENT CONCRETE
BITUMINOUS PAVEMENT
BITUMINOUS PAVEMENT OVER PORTLAND CEMENT CONCRETE
BLAST PAVEMENT (AC NONTRAFFIC)
DOUBLE BITUMINOUS SURFACE TREATMENT
SCALE IN FEET
500
0
500



BANGOR INTERNATIONAL AIRPORT
PAVEMENT PLAN

PLATE 2

2



LEGEND

- TRANSVERSE CRACK
- LONGITUDINAL CRACK
- DIAGONAL CRACK
- CORNER BREAK
- SHRINKAGE CRACK
- SCALING
- SPALL ON TRANSVERSE JOINT
- SPALL ON LONGITUDINAL JOINT
- CORNER SPALL
- MAP CRACKING
- POP-OUT
- UNCONTROLLED CONTRACTION CRACK

NOTE: SLAB SIZE 25 FT X 25 FT (VAR).
19-IN. THICKNESS FROM 62+80 TO 66+82 AND FROM 99+00 TO RUNWAY END (15).
19-21-19-IN. FROM 66+82 TO 99+00.
17-19-17-IN. FROM 36+50 TO 50+15.

COMPARISON OF DEFECTS

NW-SE PARALLEL TAXIWAY AND NORTH CONNECTING TAXIWAY

STATION 36+50 TO 50+15

STATION 62+80 TO RUNWAY 15 END

PLATE 3